

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/>		5. LEASE DESIGNATION AND SERIAL NO. U-32179
b. TYPE OF WELL OIL WELL <input checked="" type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>		6. IF INDIAN, ALLOTTEE OR TRIBE NAME -----
2. NAME OF OPERATOR WALTER D. BROADHEAD		7. UNIT AGREEMENT NAME -----
3. ADDRESS OF OPERATOR 1645 North 7th, Grand Junction, CO 81501 (303/242-7717)		8. FARM OR LEASE NAME Federal
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)* At surface 2269' FNL & 1465' FWL, in the SE $\frac{1}{4}$ NW $\frac{1}{4}$, of Section 33 At proposed prod. zone approximately same		9. WELL NO. Federal Harris No. 2
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE* 6.2 miles Northeasterly of Cisco, Utah		10. FIELD AND POOL, OR WILDCAT Williston Dr. Cisco area
15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drig. unit line, if any)		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec 33, T20S, R24E, SLB&M
16. NO. OF ACRES IN LEASE 1080		12. COUNTY OR PARISH Grand
17. NO. OF ACRES ASSIGNED TO THIS WELL		13. STATE Utah
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT. 0.5 mile		20. ROTARY OR CABLE TOOLS rotary
21. ELEVATIONS (Show whether DF, RT, GR, etc.) GR 4533'		22. APPROX. DATE WORK WILL START* September 25, 1981

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
8 5/8"	7"	17#	100'	circulate cement to surface
6 1/4"	4 1/2"	9.5#	TD	50 sx cement

EXHIBITS ATTACHED:

- "A" Location and Elevation Plat
- "B" Ten-Point Compliance Program
- "C" Blowout Preventer Diagram
- "D" Multi-Point Requirements for APD
- "E" Route & Distance Road Map & Radius Map
- "F" Access Road & Topo Map
- "G" Drill Pad Layout
- "H" Drill Rig Layout
- "I" Production Facility Layout

APPROVED BY THE STATE
OF UTAH DIVISION OF
OIL, GAS, AND MININGDATE: 8/23/81
BY: CB Taylor

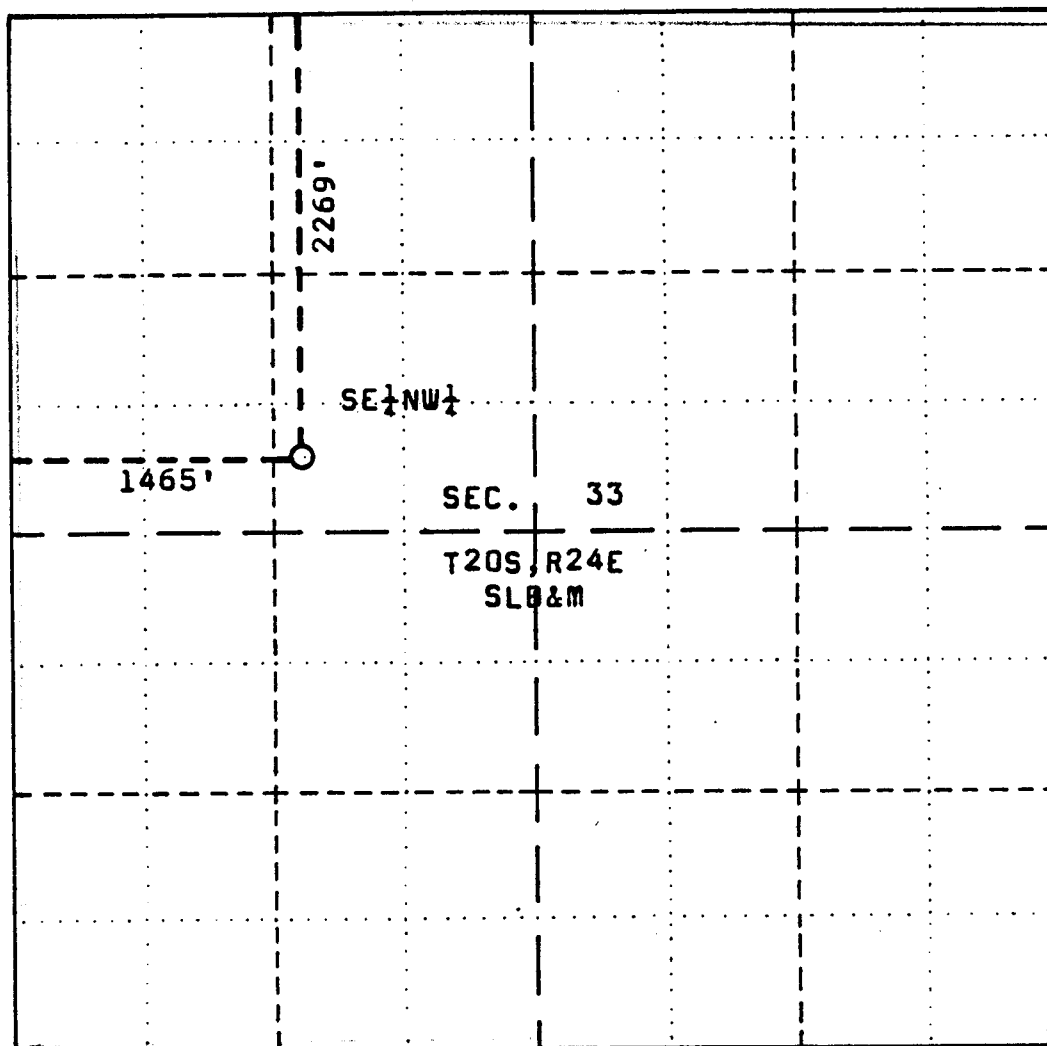
IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. SIGNED Walter D. Broadhead TITLE Operator DATE September 3, 1981

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:



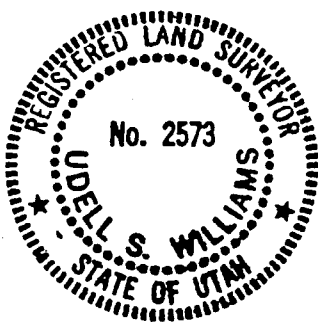
SCALE: 1" = 1000'

FEDERAL HARRIS NO.2

Located South 2269 feet from the North boundary and East 1465 feet from the West boundary of Section 33, T20S, R24E, SLB&M.

Elev. 4533

Grand County, Utah

SURVEYOR'S CERTIFICATE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

Udell S. Williams

UTAH R.L.S. NO. 2573

**UDELL S. WILLIAMS**

751 Rood Avenue
GRAND JUNCTION, COLORADO 81501

PLAT OF
PROPOSED LOCATION

FEDERAL HARRIS NO.2
SE $\frac{1}{4}$ NW $\frac{1}{4}$ SECTION 33
T20S, R24E, SLB&M

SURVEYED BY: USW DATE: 7/13/81
DRAWN BY: USW DATE: 7/13/81

United States Department of the Interior
Geological Survey
2000 Administration Bldg.
1745 West 1700 South
Salt Lake City, Utah 84104

NEPA CATEGORICAL EXCLUSION REVIEW

PROJECT IDENTIFICATION

Operator Walter D. Broadhead
Project Type Oil Well and Gas Well - Development
Project Location 2269' FNL & 1465' FWL - Sec. 33, T. 20S, R. 24E
Well No. Federal Harris #2 Lease No. U-32179
Date Project Submitted September 11, 1981

FIELD INSPECTION

Date October 7, 1981

Field Inspection
Participants

Craig Hansen - USGS, Vernal

Walter Broadhead - Operator

Elmer Duncan - BLM, Moab

Keven Cleary - BLM, Moab

Related Environmental Documents: _____

I have reviewed the proposal in accordance with the categorical exclusion review guidelines. This proposal would not involve any significant effects and, therefore, does not represent an exception to the categorical exclusions.

10-16-81

Date Prepared

Craig Hansen
Environmental Scientist

I concur

NOV 05 1981

Date

W.T. Monte

District Supervisor

FOR E. W. GUYNN
DISTRICT OIL & GAS SUPERVISOR

Typed In 10-15-81

Typing Out 10-16-81

CATEGORICAL EXCLUSION REVIEW INFORMATION SOURCE

Criteria 516 DM 2.3.A	Federal/State Agency			Local and private corre- spondence (date)	Previous NEPA	Other studies and reports	Staff expertise	Onsite inspection (date)	Other
	Corre- spondence (date)	Phone check (date)	Meeting (date)						
Public health and safety	B/m 10-30-81						2	10-7-81 2,4,6	
Unique charac- teristics	-						2	2,4,6	
Environmentally controversial	/						2	2,4,6	
Uncertain and unknown risks	/						2	2,4,6	
Establishes precedents							2	2,4,6	
Cumulatively significant	/						2	2,4,6	
National Register historic places	/								
Endangered/ threatened species	/								
Violate Federal, State, local, tribal law	/								

CATEGORICAL EXCLUSION REVIEW COMMON REFERENCE LEGEND

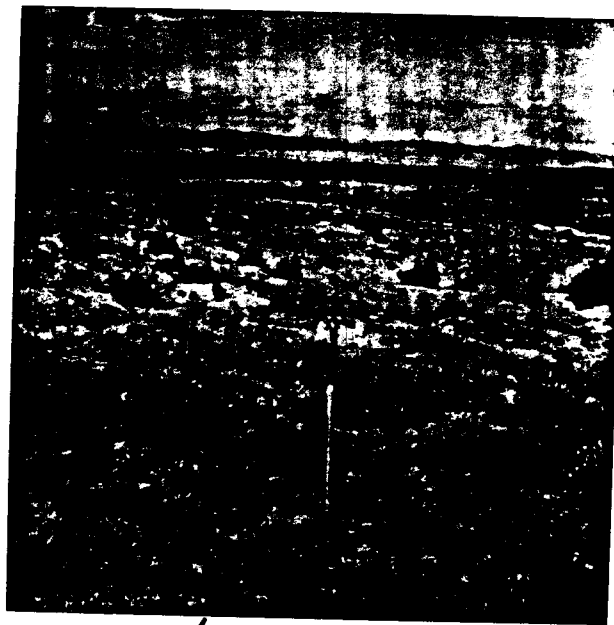
1. Surface Management Agency Input
2. Reviews Reports, or information received from Geological Survey
(Conservation Division, Geological Division, Water Resource Division,
Topographic Division)
3. Lease Stipulations/Terms
4. Application Permit to Drill
5. Operator Correspondence
6. Field Observation
7. Private Rehabilitation Agreement

RECOMMENDED STIPULATIONS FOR WALTER D. BROADHEAD FEDERAL HARRIS #2:

1. Production facilities will be painted a tan color to blend in with the natural surroundings.
2. Archeological clearance will be obtained.
3. Location will be rotated 90° to the left to accomodate the rig.
4. The location will be reduced to 100' x 100' due to rig size.
5. Approval from the pipeline company must be obtained.

COMMENTS:

A small rig will be used to drill the well, minimum disturbance of the surface will take place.



Walter Broadhead
Harris #2.



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Moab District
Grand Resource Area
P. O. Box M
Moab, Utah 84532

IN REPLY REFER TO

3109
U-32179
(U-068)

OCT 30 1981

Memorandum

To: Oil & Gas Office
USGS Conservation Division
P.O. Box 1037
Vernal, Utah 84078

From: Area Manager, Grand

Subject: Walter D. Broadhead (A.P.D.)
Federal Harris #2 Lease: #U-32179
SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 33, T. 20 S., R. 24 E., SLB&M
Grand County, Utah

On October 7, 1981 a representative from this office met with Cody Hansen, USGS, and Walter D. Broadhead, agent of Walter Broadhead for an inspection of the above referenced location. Subject to the attached conditions and written approval from USGS, I am approving the surface management portion of the Application for Permit to Drill.

The archaeological requirement has been fulfilled on this location. No threatened or endangered flora or fauna are indicated in the area.

Please forward the enclosed information to Walter Broadhead.

Enclosures: (3)
1-Reclamation Procedures
2-Seed Mixture
3-Suggested Colors - Production Facilities

Company: Walter Broadhead
Well: Federal Harris #2
Section 33, T. 20 S., R. 24 E.
ADDITIONS TO THE MULTIPOINT
SURFACE USE PLAN
AND
RECLAMATION PROCEDURES

CONSTRUCTION:

1. The operator or his contractor will contact the Grand Resource Area Office in Moab, Utah phone (801 259-6111) 48 hours prior to beginning any work on public land.
2. The dirt contractor will be furnished with an approved copy of the surface use plan and any additional BLM stipulations prior to any work.
3. Use of water from sources such as wells, springs, streams or stock ponds for activities associated with this well will be approved, prior to use, by the agency or individual holding the water right.
4. If subsurface cultural material is exposed during construction, work in that spot will stop immediately and the Grand Resource Area Office will be contacted. All employees working in the area will be informed by the operator that they will be subject to prosecution if they are caught disturbing archaeological sites or picking up artifacts. Salvage or excavation of identified archaeological sites will only be done if damage occurs.
5. Improvement to the existing road on lease will be necessary. The total disturbed width allowed will be 24 feet. The allowable travel surface will be 18 feet. Berms will be pulled from the edge of the road to the center and at least a 3 inch crown built along the road center. Low water crossings will be installed at each drainage crossing.

Surface disturbance and vehicular travel will be limited to the approved location and approved access route. Any additional area needed will be approved in advance.

Surfacing material will not be placed on the access road or location without prior BLM approval.

6. Location: Pad layout shows 200' X 250', but only 100' X 100' will be leveled for the rig and mud tanks. The remaining area will be left as is. The layout will be rotated 90° counter clockwise to accomodate the rig.

7. The top 6 inches of soil material will be removed from the 100' X 100' leveled area and stockpiled on the west side of the location.
8. The reserve pit will not be lined with commercial bentonite or plastic sufficient to prevent seepage. Keyway. The reserve pit banks will be 1.5 to 2.0 feet above pad and constructed in 8" lifts, machinery compacted, and sufficiently wide for equipment to pass over. An area 1.5 cat blades wide will be cleared behind the pit(s) for fire protection.
9. Three sides of the reserve pit will be fenced before drilling starts. The fourth side will be fenced as soon as the drilling is completed. The fence will be kept in good repair while the pit is drying. The fence will be 48" high woven wire with one strand of barbed wire along the top for support.

PRODUCTION

1. The reserve pit and that portion of the location and access road not needed for production or production facilities will be reclaimed in the methods described in the rehabilitation section. All of the stockpiled topsoil will be used in reclaiming the unused areas.
2. All above-ground production facilities will be painted using the attached suggested colors.
3. If the well produces oil and storage tanks are installed the dike will be high enough to contain the storage tank capacity plus 25%. The loading valves will be inside the berm and an one-half barrel pump at the end of the loading valve to prevent spillage.

REHABILITATION

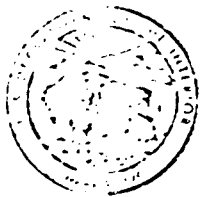
1. Immediately upon completion of drilling, the location and surrounding area will be cleared of all debris resulting from the operation. All trash will be disposed of in the trash cage. Non-burnable debris will be hauled to a local town dump site.
2. The operator or his contractor will contact the Grand Resource Area BLM office in Moab, Utah, phone (801 259-6111), 48 hours prior to starting rehabilitation work that involves earthmoving equipment and upon completion of restoration measures.
3. Before any dirt work to restore the location takes place, the reserve pit must be completely dry and any trash (barrels, metal etc.) it contains must be removed from public lands.
4. All disturbed areas will be recontoured to blend as nearly as possible with the surrounding area.
5. The stockpiled topsoil will be evenly distributed over the disturbed area.
6. All disturbed areas will be scarified with the contour to a depth of 6 inches. Do not smooth pads out, leave a roughened surface.
7. Seed will be drilled at a time to be specified by the BLM with the following seed prescription. When broadcast seeding, a harrow or some such implement will be dragged over the seeded area to assure seed cover.
8. After seeding is complete the stockpiled trees will be scattered evenly over the disturbed areas and walked down with a dozer. The access will be blocked to prevent any vehicle use.
9. Waterbars will be used on all sloping surfaces as shown below:

<u>Grade</u>	<u>Spacing</u>
2%	200 ft. spacing
2-4%	100 ft. spacing
4-5%	75 ft. spacing
+5%	50 ft. spacing

SEED MIXTURE

Species		Rate
<u>Grasses</u>		<u>lbs/acre</u>
Oryzopsis hymenoides	Indian rice grass	1
Hilaria jamesii	Curley grass	1
<u>Forbs</u>		
Sphaeralcea coccinea	Globemallow	1
<u>Shrubs</u>		
Atriplex nuttallii	Nuttal Saltbush	1
Atriplex confertifolia	Shadscale	1
Ceretoides lanata	Winterfat	1
		<hr/>
		6

Double this amount if the seed will be broadcast.



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

IN REPLY REFER TO

SUGGESTED COLORS TO PAINT OIL & GAS PRODUCTION FACILITIES

Cisco Desert and Flats below the Bookcliffs: -

Dynasty Green	(Sears)
Tumbleweed	(Pratt & Lambert)
Desert Tan	-----
Sage Gray	(Pratt & Lambert)

Bookcliffs Region:

Sage Gray	(Pratt & Lambert)
Sea Life	(Pratt & Lambert)
Dynasty Green	(Sears)

Similar hues other than the ones mentioned above must be approved by the Grand Resource Area Manager.

EXHIBIT "B"

TEN-POINT COMPLIANCE PROGRAM OF NTL-6

APPROVAL OF OPERATIONS

WALTER D. BROADHEAD
Federal Harris No. 2
SE $\frac{1}{4}$ NW $\frac{1}{4}$, Sec 33, T20S, R24E, SLB&M
Grand County, Utah

1. Geologic Surface Formation

The surface formation is Dakota.

2. Important Geologic Markers

<u>Formation</u>	<u>Depth</u>
Salt Wash	600

3. Estimated Depths of Anticipated Water, Oil, Gas or Minerals

<u>Formation</u>	<u>Depth</u>	<u>Fluids</u>
Salt Wash	600	Gas and/or Oil and/or Water

4. Proposed Casing Program

Surface Casing:

- (a) Drill 8 5/8" hole to 100' and set 7" 17-lb. cemented to surface.
- (b) Drill 6 1/4" hole to 600' and set 4 1/2" 9.5-lb. with 50 sx cement.

5. Operator's Minimum Specifications for Pressure Control

Exhibit "C" is a schematic diagram of the blowout preventer equipment planned for use in this well. The BOP's will be hydraulically tested to 1000 psi after nipping up and after any use under pressure. Pipe rams will be operationally checked each trip. All tests will be recorded in the daily drilling report. Accessories to BOP's include Kelly Cock, safety valve, drill string BOP and choke with pressure rating equivalent to the BOP stack.

6. Type of Characteristics of Proposed Muds

The well will be drilled with air and air mist until water is encountered, then it will be completed with mud. One hundred barrels of 8.5 to 9-lb. mud will be mixed up for use in drilling or in the event it is needed to kill well or logging operations.

7. Auxiliary Equipment to be Used

- (a) Kelly Cock will be kept in the string.
- (b) A full opening stabbing valve will be on the floor for use, when the Kelly is not in the string.
- (c) A float will be run at the bit.
- (d) Monitoring equipment will be installed and used on the mud system.

8. The Testing, Logging and Coring Programs

- (a) Drill stem tests are not planned at this time.
- (b) The logging program will consist of Induction Electric & Compensated Nuclear Density.
- (c) No coring is planned.
- (d) Drilling samples will be caught at 20' intervals BSC to 300'; from 300' to TD samples at 5' intervals.

9. Any Anticipated Abnormal Pressures or Temperatures Expected

No abnormal gas pressures or temperatures are expected. No hydrogen sulfide or other hazardous gasses or fluids have been reported in the area.

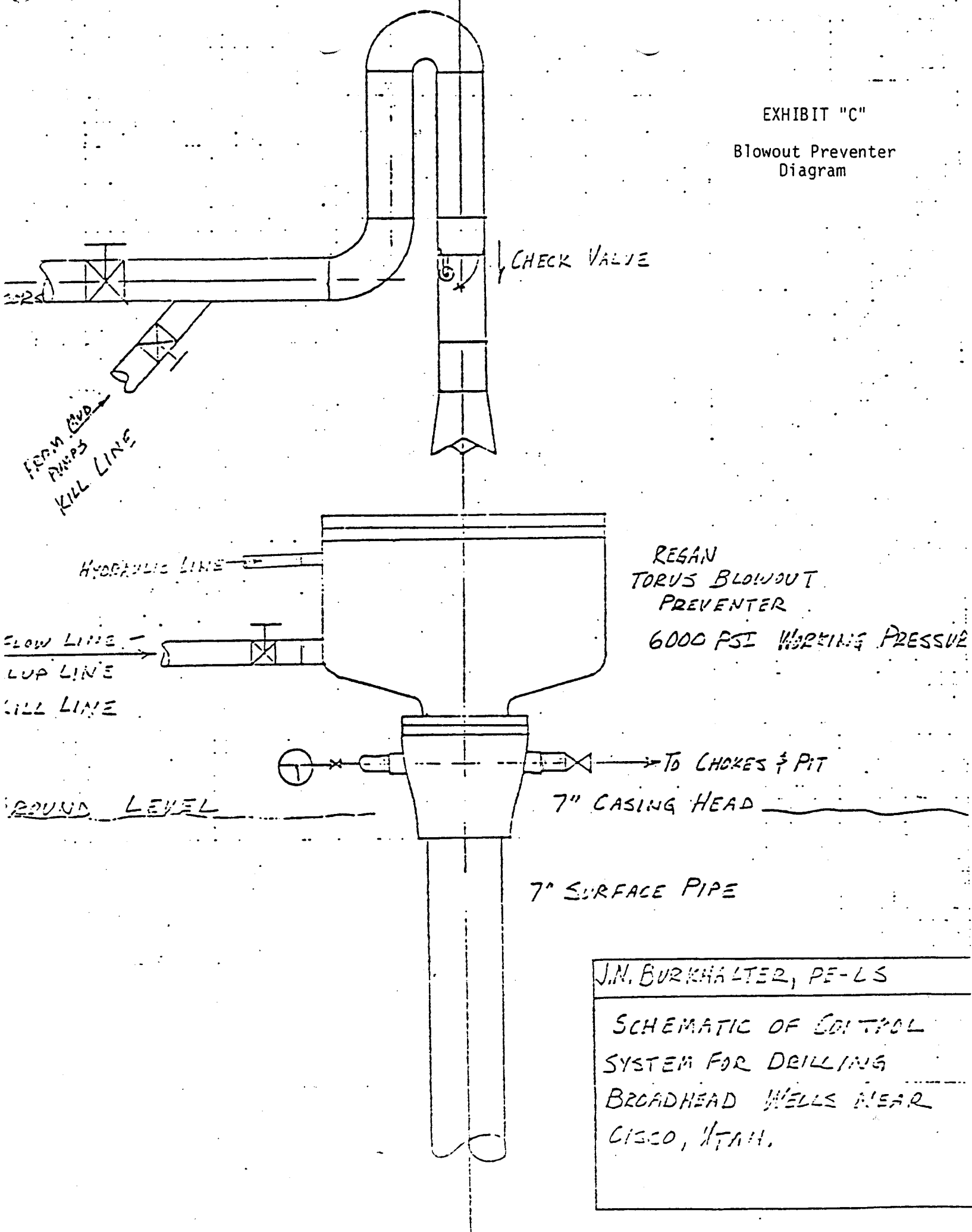
10. Anticipated Starting Date and Duration of Operations

The anticipated starting date is September 25, 1981, or as soon as possible after approval of all drilling requirements.

Drilling operations should be completed 3 to 4 days after spudding.

EXHIBIT "C"

Blowout Preventer
Diagram



J.M. BURKHALTER, PE-LS

SCHEMATIC OF CONTROL
SYSTEM FOR DRILLING
BROADHEAD WELLS NEAR
CISCO, UTAH.

EXHIBIT "D"

MULTI-POINT REQUIREMENTS TO ACCOMPANY APD

WALTER D. BROADHEAD
Federal Harris No. 2
SE $\frac{1}{4}$ NW $\frac{1}{4}$, Sec 33, T20S, R24E, SLB&M
Grand County, Utah

1. Existing Roads

- A. Exhibit "A" is the proposed well site as staked by Udell S. Williams, and the ground elevation is shown thereon.
- B. Exhibit "E" is the route and distance road map. The location is a total of 6.2 miles Northeasterly from Cisco, Utah. To reach the location travel Northeasterly from Cisco 5.0 miles on old U.S. Highway 6 & 24; turn right onto a 16' graded dirt road and go Southeasterly 1.2 miles, across a buried pipeline right-of-way, to the location, beside the road on the left.
- C. Exhibit "F" is a print of a portion of the Danish Flat, Utah, Quadrangle and shows the access road into the location.
- D. All known existing roads appear on Exhibits "E" and "F".
- E. This is considered a Wildcat Well.
- F. The roads leading to this location are in good condition to carry the traffic for this well.

2. Planned Access Roads

There is no new access road necessary for this location.

3. Location of Existing Wells

For all existing wells within a two-mile radius of the wildcat well, see Exhibit "E".

- (1) There are no water wells.
- (2) There are no abandoned wells.
- (3) There are no temporarily abandoned wells.
- (4) There are no disposal wells.
- (5) There are no drilling wells.
- (6) There are no producing wells.
- (7) There are no shut-in wells.
- (8) There are no injection wells.
- (9) There are no monitoring or observation wells for other resources.

4. Location of Existing and/or Proposed Facilities

- A. Within a two-mile radius of this location are existing facilities owned or controlled by lessee/operator as shown on Exhibit "E".
- B.
 - (1) Exhibit "I" shows all anticipated production facilities.
 - (2) The dimensions of production facilities shown on Exhibit "I" are drawn to a scale of 1" = 50'.
 - (3) The only construction materials needed from outside the location would be gravel for a pad under separator and/or dehydrator unit. Gravel would be trucked into the location over the access road by the dirt contractor from the nearest commercial pit in the Cisco area.
 - (4) If a small pit is required, it will be fenced and flagged.
- C. Rehabilitation, whether the well is productive or not, will be made on unused areas as soon as practical in accordance with the restoration plans presented in Item 10 following.

5. Location and Type of Water Supply

- A. Water will be trucked from Cisco Springs, 8.9 road miles Northwesterly of the location.
- B. Water will be trucked over the existing access roads by oilfield water trucks.
- C. No water well is planned.

6. Source of Construction Materials

A., B., C., D.

No construction materials are needed for drilling operations.

7. Methods for Handling Waste Disposal

- (1) Drill cuttings will be buried in the reserve pit when covered.
- (2) Drilling fluids will be contained in steel mud pits and the reserve pit. These fluids will be disposed of in the reserve pit.
- (3) Any hydrocarbon liquids produced while drill stem testing or production testing will be collected in a test tank near the pipe baskets or near the wellhead. Any unavoidable spills of oil or other adverse substances or materials will be covered or removed immediately during drilling progress or during completion operations.
- (4) Chemical toilet facilities will be provided for human waste.
- (5) Garbage and trash will be collected in a trash cage and its contents hauled to the nearest designated landfill.

- (6) The reserve pits will be fenced or covered as soon as practical upon removal of the rig. Other pits will be covered as soon as possible after removal of the rig.

8. Ancillary Facilities

No air strips, camps or other living facilities will be built off the location. The normal trailers will be on the location as seen on Exhibit "H".

9. Well Site Layout

- (1) Exhibit "G" is the drill pad layout. Topsoil will be stockpiled to specifications determined at the pre-drill inspection.
- (2) (3) The mud tanks, reserve pit, trash cage, pipe racks, living facilities, and soil material stockpiles, rig orientation, parking areas and access road are all shown on Exhibit "H".
- (4) The reserve pits will not be lined. Steel mud tanks will be used, and are shown on Exhibit "H". If water is produced in production, an NTL-2b study will be initiated.

10. Plans for Restoration

- (1) Backfilling, leveling, and recontouring will be accomplished as soon as possible after plugging of the well, and on those unused areas if production is obtained. Waste disposal and spoils materials will be buried or hauled away.
- (2) Rehabilitation will be accomplished by recontouring as best practical back to blend with original contours. The stockpiled topsoil will be spread, along with ripping of the pad and road area (if so desired by surface owner). Revegetation will be accomplished using grasses chosen by B.L.M.
- (3) Three sides of the reserve pit will be fenced prior to drilling operations. Upon rig release, the reserve pit will be fenced on the fourth side and will remain until recontouring and cleanup operations are completed.
- (4) Any oil spills will be immediately reported, cleaned up, or flagged.
- (5) Rehabilitation operations will commence as soon as practical after rig moves off location. Earth work and seeding will be done during the Fall of 1981, if possible.

11. Other Information

As indicated on Exhibit "F", the topography of the location vicinity has very little relief. The location lies on a gentle plain which slopes Southeasterly 1-2%. This location lies Southeasterly of Interstate 70 and Northwesterly of the Colorado River.

The soil is a light tan to grey shallow soil, typical of Mancos formation.

The vegetation in the immediate area surrounding the location is sagebrush, Matt saltbush, shadscale, prickly pear cactus, Russian thistle, greasewood, and cheatgrass.

The fauna of the area consists of cattle, sheep, antelope, rabbits, lizards, ravens, meadow lark, killdeer, ground sparrows and martens.

The surface ownership is B.L.M. The surface use is grazing, petroleum production, and recreation.

The nearest live water is the Colorado River, 4 air miles Southeasterly of the location, as shown on Exhibit "E".

The nearest occupied dwelling is in Cisco, Utah, 5.0 road miles Southwesterly of the location, as shown on Exhibit "E".

There are no visible archaeological, historical, or cultural sites within any reasonable proximity to the proposed location site.

There are no reported restrictions or reservations noted on the oil and gas lease.

12. Lessee's or Operator's Representative

Walter D. Broadhead
1645 North 7th Street
Grand Junction, Colorado 81501
Telephone 303/242-7717

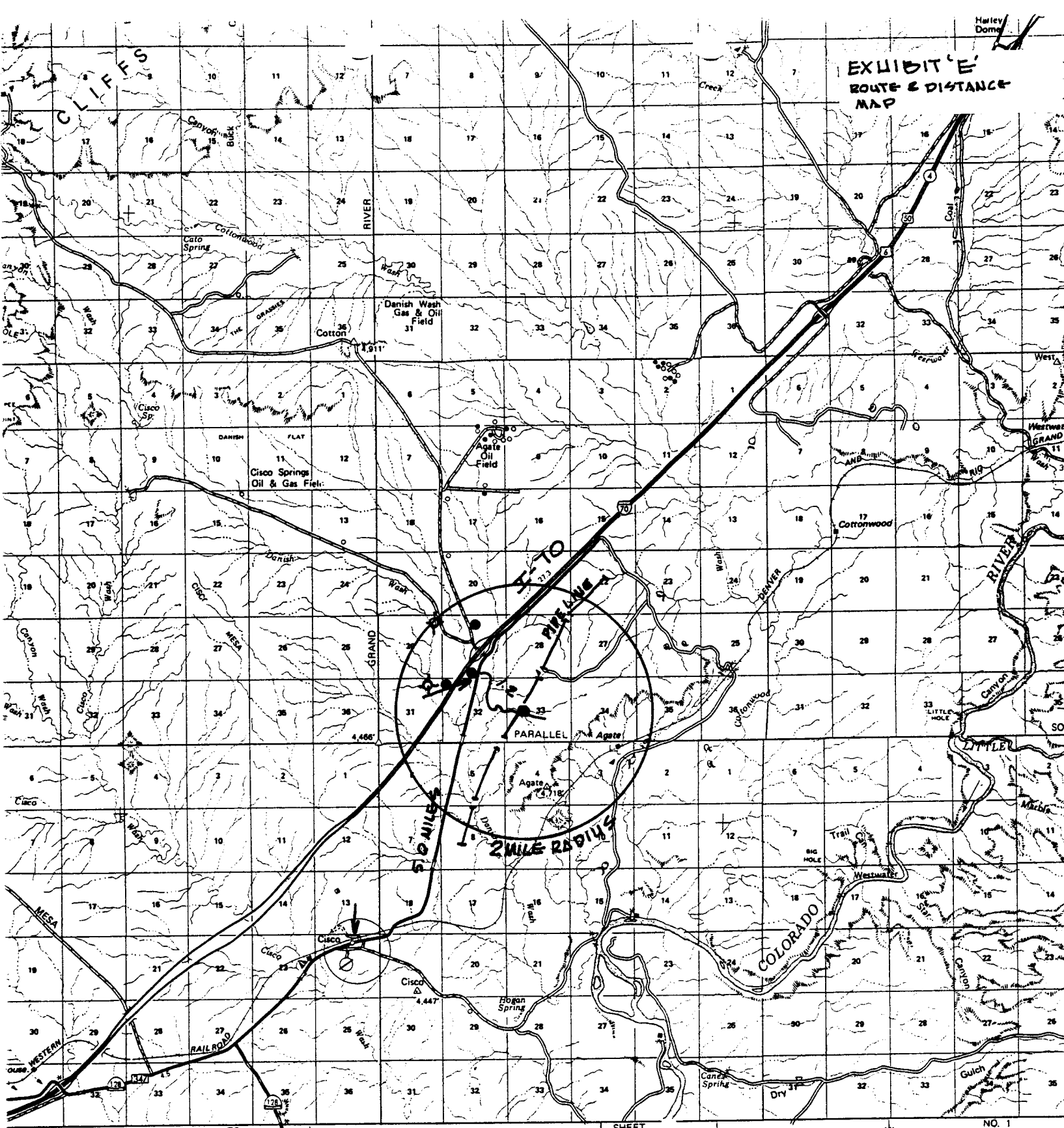
13. Certification

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by my contractors and subcontractors in conformity with this plan and terms and conditions under which it is approved.

September 3, 1981
Date

Walter D. Broadhead
Operator

EXHIBIT 'E'
ROUTE & DISTANCE
MAP



● OIL WELL
✦ GAS WELL

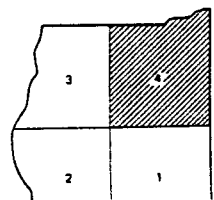
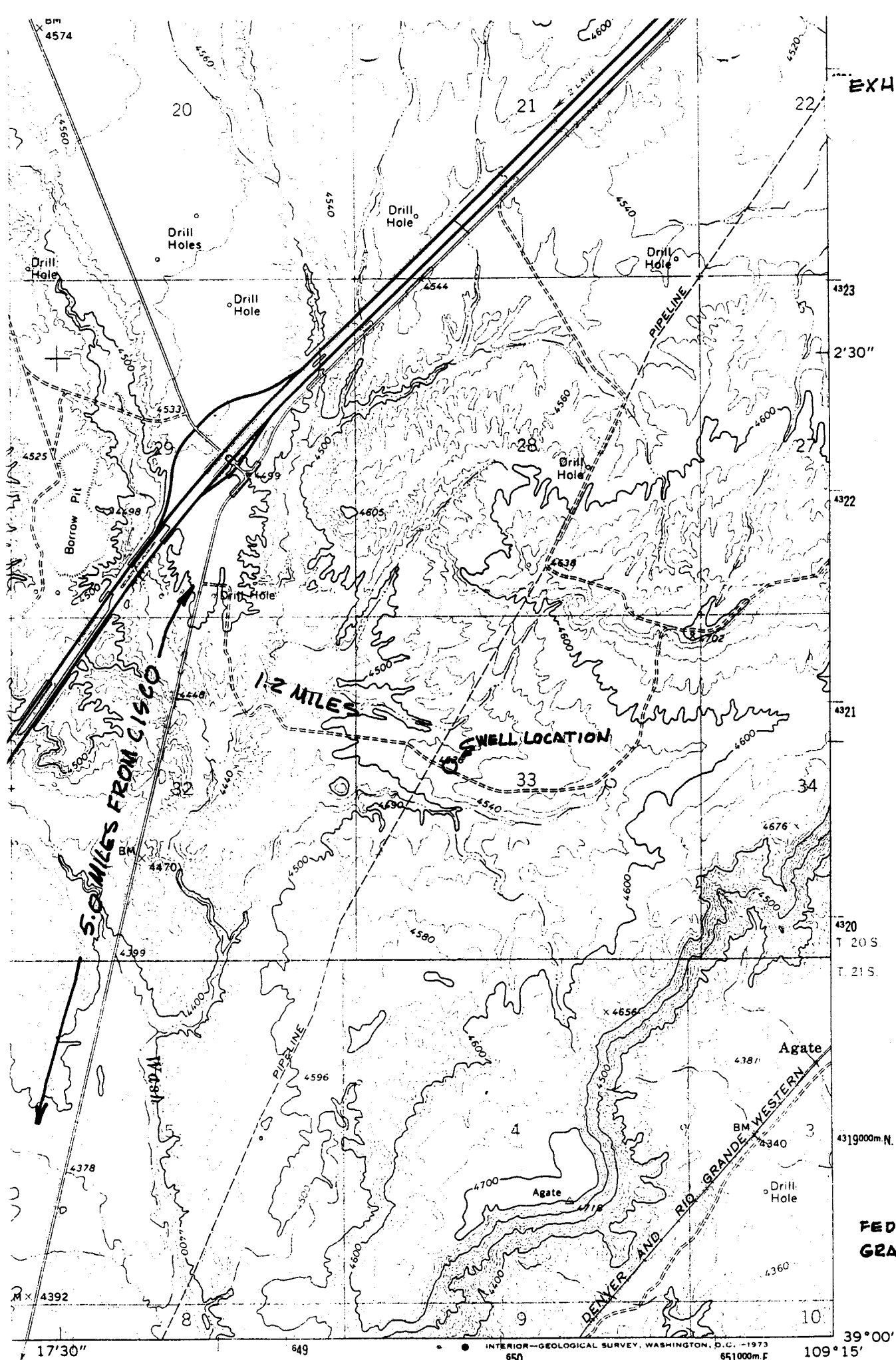
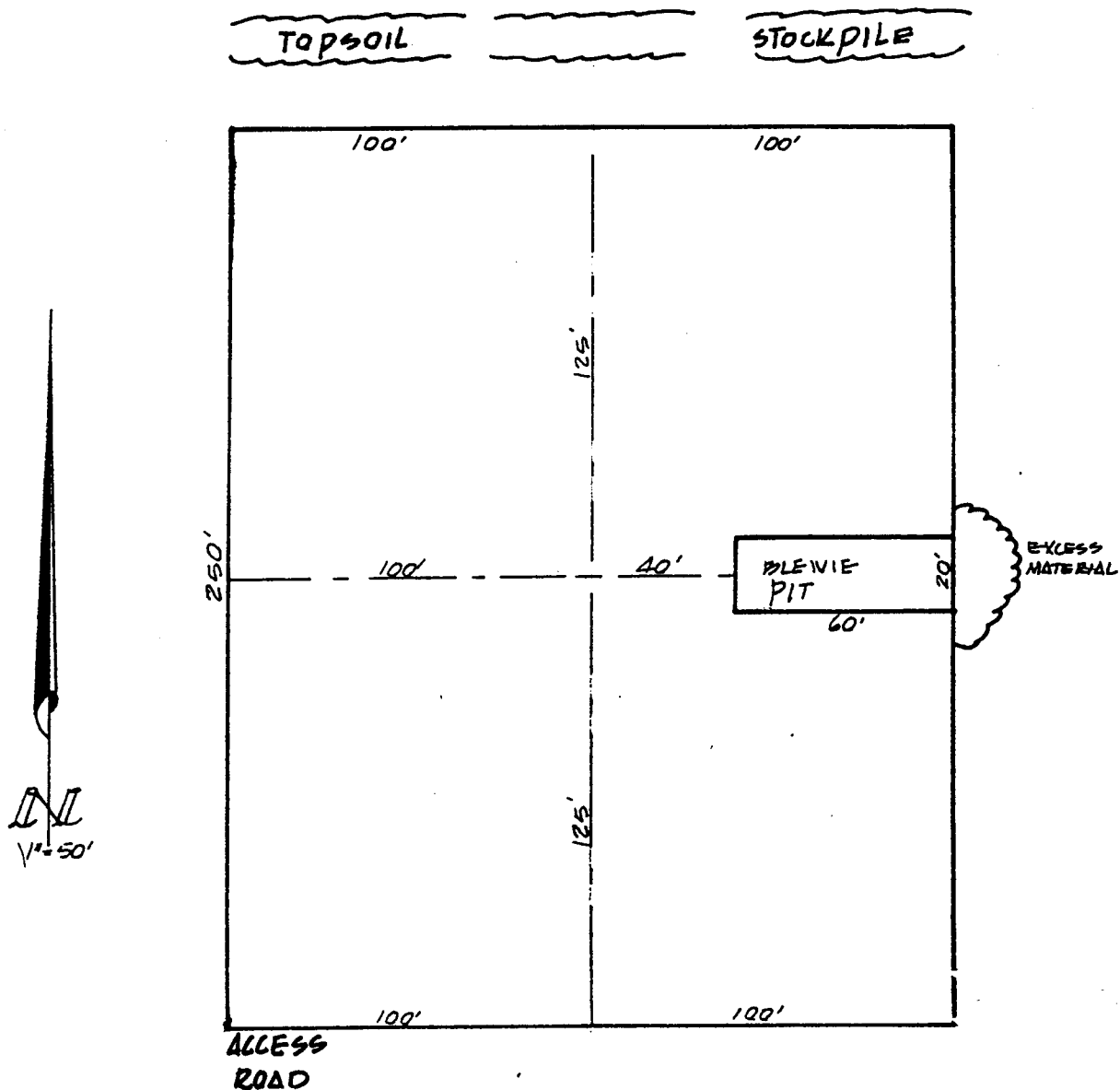


EXHIBIT 'F'



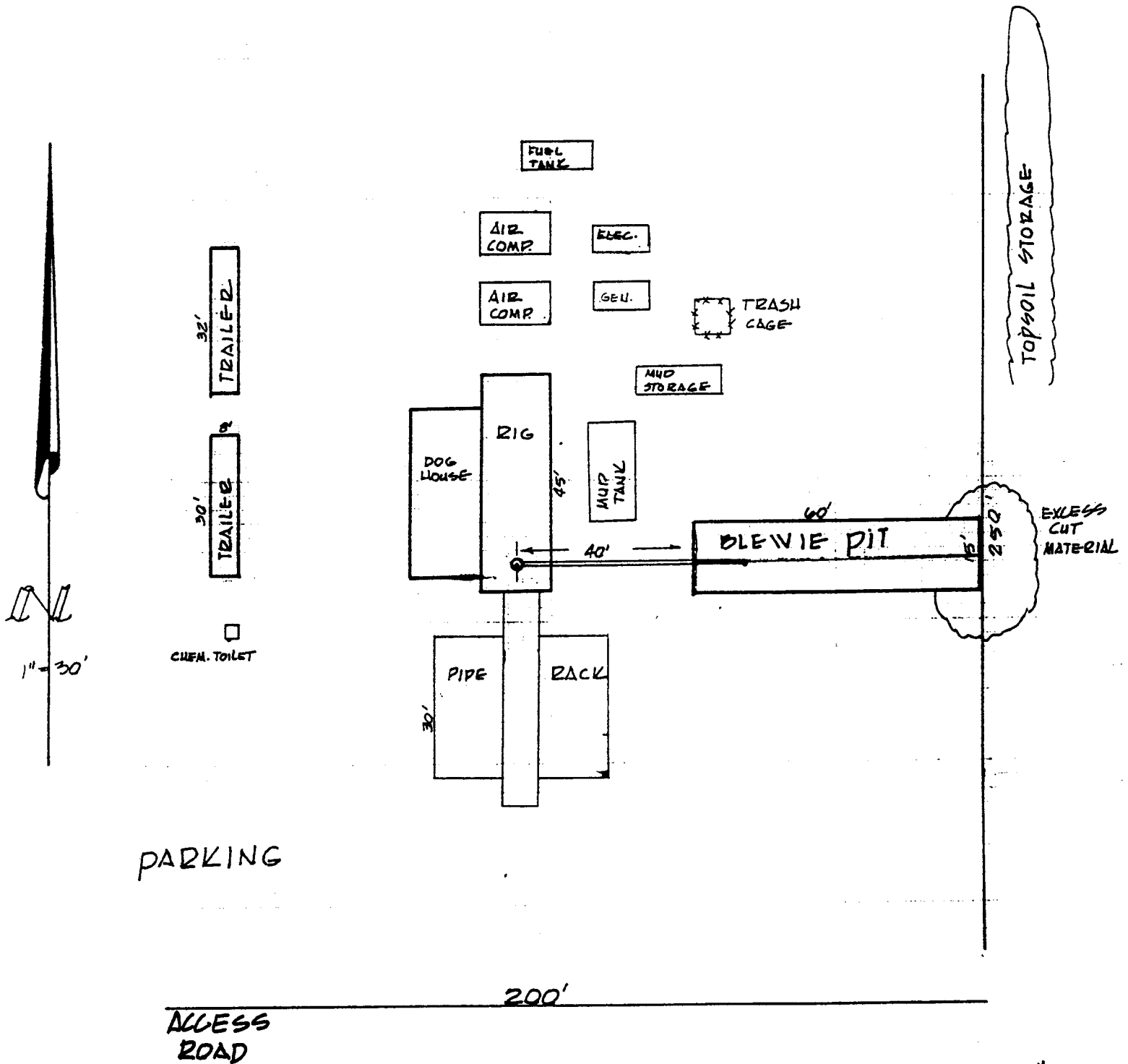
FEDERAL HARRIS #2
GRAND COUNTY, UTAH

EXHIBIT 'G'
 DRILL PAD LAYOUT
 FEDERAL HARRIS #2
 GRAND CO., UTAH



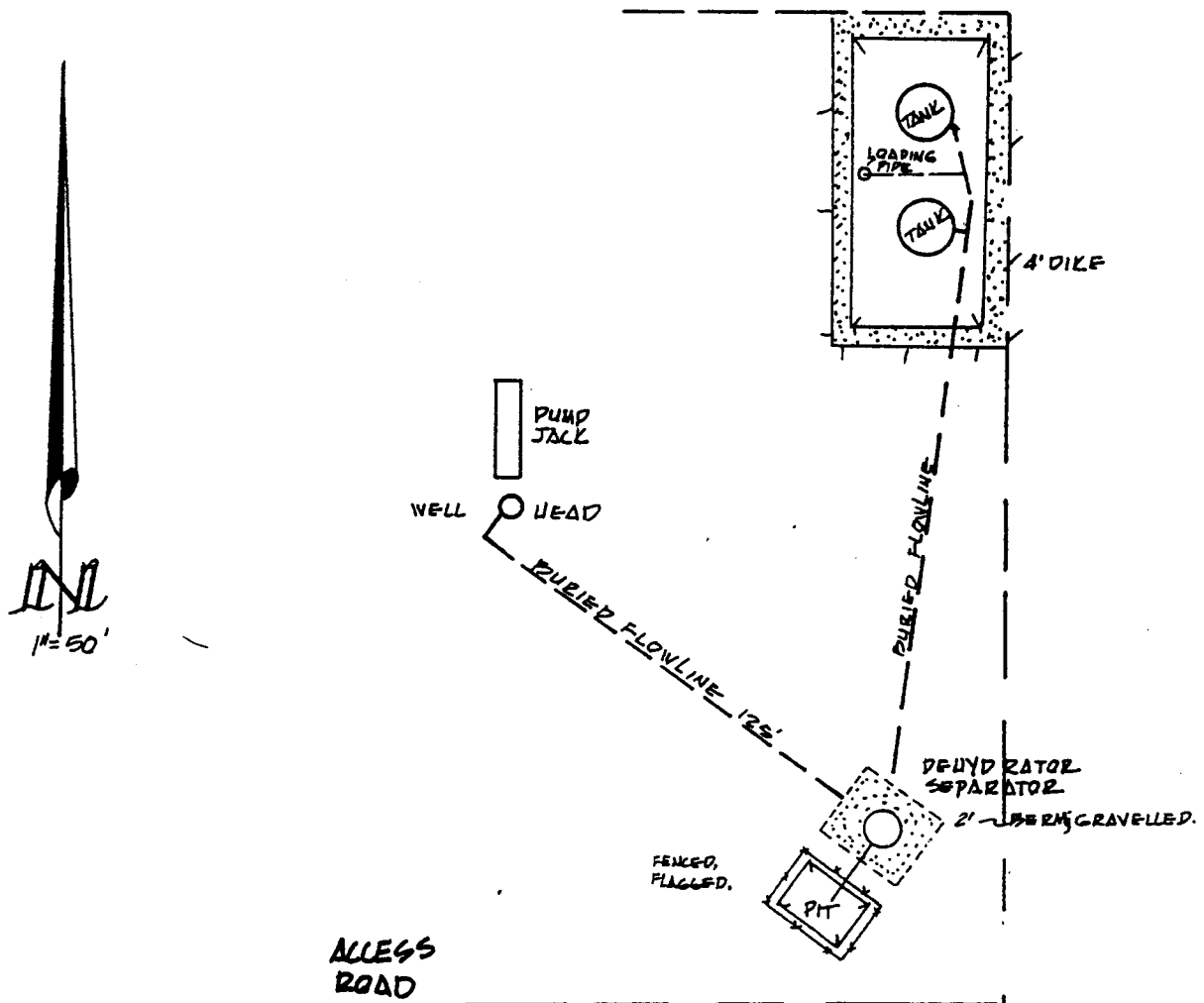
FEDERAL HARRIS #2
 WALTER R BROADHEAD

EXHIBIT 'H' DRILL RIG LAYOUT



FEDERAL HARRIS #2
GRAND COUNTY, UTAH

EXHIBIT I
PRODUCTION FACILITIES



FEDERAL HARRIS #2
GRAND COUNTY, UTAH

**** FILE NOTATIONS ****

DATE: October 15, 1981

OPERATOR: Walter D. Broadhead

WELL NO: Federal Harris No. 2

Location: Sec. 33 T. 20S R. 24E County: Grand

File Prepared: ☒

Entered on N.I.D: ☒

Card Indexed: ☒

Completion Sheet: ☒

API Number 43-019-30873

CHECKED BY:

Petroleum Engineer: _____

Director: _____

Administrative Aide: as per order below, to close to
str. & sec. line, ok on lease boundary & oil & gas well

APPROVAL LETTER:

Bond Required: ☐

Survey Plat Required: ☐

Order No. 102-16B, 9-26-79 O.K. Rule C-3 ☐

Rule C-3(c), Topographic Exception - company owns or controls acreage
within a 660' radius of proposed site ☐

Lease Designation ☒

Plotted on Map ☐

Approval Letter Written ☐

Hot Line ☒

P.I. ☒

** FILE NOTATIONS **

DATE: October 15, 1981

OPERATOR: Halter D. Broadhead

WELL NO: Federal Harris No. 2

Location: Sec. 33 T. 20S R. 24E County: Grand

File Prepared: ☒

Card Indexed: ☒

API Number

CHECKED BY:

Petroleum Engineer: _____

Director: _____

Administrative Aide: _____

as per order below, to close to
str. & section line, on lease boundary & oil & gas well

APPROVAL LETTER:

Bond Required: ☐

Order No. 102-16B, 9-26-

Rule C-3(c), Topographic Exception
within a 660' radius

Lease Designation ☒

Approval Letter

Hot Line ☒

P.I. ☐

*Called 11/15/83
asked for Well
Completion forms.
Mike Broadhead
asked for more forms.
sent today
Claudia*

*No notification
of P & A in the
Fed records
as of 12-13-83
see Jimmy R.
and Carol Freidiger
Gover*

age

October 28, 1981

Walter D. Broadhead
1645 North 7th,
Grand Junction, Colo. 81501

RE: Well No. Federal #Harris #2, ✓
Sec. 33, T. 20S, R. 24E,
Grand County, Utah

Insofar as this office is concerned, approval to drill the above referred to gas well is hereby granted in accordance with the Order issued in Cause No. 102-16B, dated August 26, 1979.

Should you determine that it will be necessary to plug and abandon this well, you are hereby requested to immediately notify the following:

MICHAEL T. MINDER - Petroleum Engineer
Office: 533-5771
Home: 876-3001

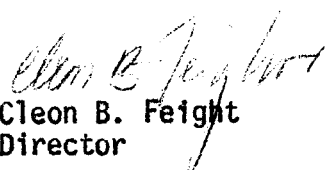
Enclosed please find Form OGC-8-X, which is to be completed whether or not water sands (aquifers) are encountered during drilling. Your cooperation in completing this form will be appreciated.

Further, it is requested that this Division be notified within 24 hours after drilling operations commence, and that the drilling contractor and rig number be identified.

The API number assigned to this well is 43-019-30873.

Sincerely

DIVISION OF OIL, GAS AND MINING


Cleon B. Feight
Director

CBF/db
CC: USGS

Oct 2' 1981

For the Harris Leases & well

this is the stipulation

U S request

Walter B. Woodhead

OCT 29 1981

DEPARTMENT OF
ENERGY
BUREAU OF LANDS & MINING

Submit in Triplicate

Rule 30 CFR 221.20 requires well shall not be drilled closer than 200 ft. from the lease boundary or 200 ft. from any legal sub-division without adequate reasons or consent.

District Oil and Gas Engineer
U. S. Geological Survey
Conservation Division
8440 Federal Building
Salt Lake City, Utah 84138

OCT 22 1951

Re: Stipulation

Dear Sir:

Abby Corporation, a New Mex. Corp. is the owner of U. S. Oil and Gas Lease U-32179, and proposes to drill a well on the leased premises to test for oil and gas at a location in the SW $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 33, T. 20 S, R. 24 E, SL Mer., Grand County, State of Utah, 2269 feet from North line and 1465 feet from West line of Section 33.

Section 221.20 of the Federal Oil and Gas Regulations requires that no well be drilled less than 200' from the boundary of any legal subdivision without the written consent of the Supervisor, United States Geological Survey. The proposed location is approximately 145 feet from the West boundary line of the SE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 33, but is considered to be necessary because of less than 200 ft from $\frac{1}{4}$ $\frac{1}{4}$ line

Therefore, Abby Corporation, Lessee, requests the consent of the Supervisor to the drilling of the proposed well at the above-described location. In consideration of such consent, Abby Corporation, Lessee, hereby expressly covenants and agrees that he will make no separate assignments of the SE $\frac{1}{4}$ NW $\frac{1}{4}$ and the SW $\frac{1}{4}$ NW $\frac{1}{4}$, Section 33, T. 20 S, R. 24 E, SL Mer., and that he will keep the two described subdivisions under joint assignment until the above-mentioned well has been plugged and abandoned with the approval of the Supervisor.

Very truly yours,

Abby Corporation

Scott A. Harris
Scott A. Harris
President

ON APPROVAL TO PLUG AND ABANDON WELL

Operator WALTER BROADHEAD Representative WALTER D. BROADHEAD

Well No. 2 Location 1/4 1/4 Section 33 Township 20S Range 24E

Lease No. U-32179 Field _____ State GRAND COUNTY UTAH

Unit Name and Required Depth _____ Base of fresh water sands _____

T.D. 600' Size hole and Fell per sack _____ Mud Weight and Top 8.4 #/gal. _____

Casing Size	Set At	Top of Cement	To Be Pulled	Plugging Requirements		
				From	To	Sacks Cement
<u>7"</u>	<u>510'</u>			<u>10 SK @</u>	<u>Surface + Rg.</u>	<u>Marker</u>
<u>4 1/2"</u>	<u>100'</u>					
Formation	Top	Base	Shows			
<u>Salt Wash</u>	<u>600'</u>			<u>200'</u>	<u>100'</u>	
				<u>480'</u>	<u>400'</u>	

REMARKS

DST's, lost circulation zones, water zones, etc., clean location level
pit, and rehab as per approved A.P.D.

Approved by [Signature] Date 9-16-82 Time 1:30 a.m. p.m.

cc: opn. w/cond. of approval ✓
 BCM MOAB w/cond. of approval
 MHS VERNAL

HER
 CONTROL BOOK
 WELL FILE



STATE OF UTAH
NATURAL RESOURCES & ENERGY
Oil, Gas & Mining

4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Cleon B. Feight, Division Director

September 22, 1982

Walter D. Broadhead
1645 North 1st Street
Grand Junction, Colorado 81501

~~the well~~
completing
as an oil well
2-25-83 spoke
w/ W. Broadhead

Re: Well No. Patsantaras Fee Pete
#3
Sec. 32, T. 20S, R. 24E.
Grand County, Utah

Well No. Federal Harris #2
Sec. 33, T. 20S, R. 24E.
Grand County, Utah

Well No. Federal Broadhead #2
Sec. 6, T. 21S, R. 24E.
Grand County, Utah

Dear Mr. Broadhead,

In reference to the above mentioned wells, considerable time has gone by since approval was obtained from this office.

This office has not received any notification of spudding. If you do not intend to drill these wells, please notify this Division. If spudding or any other activity has taken place, please send necessary forms. If you plan to drill these locations at a later date, please notify as such.

Your prompt attention to the above will be greatly appreciated.

Very truly yours,

DIVISION OF OIL, GAS AND MINING

Cari Furse

Cari Furse
Clerk Typist

CF/cf



STATE OF UTAH
NATURAL RESOURCES & ENERGY
Oil, Gas & Mining

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Cleon B. Feight, Division Director

4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

April 21, 1983

Walter D. Broadhead
1645 North 7th Street
Grand Junction, Colorado 81501

Re: Well No. Patsantaras Fee Pete # 3
Sec. 32, T. 20S, R. 24E.
Grand County, Utah

Well No. Federal Harris # 2
Sec. 33, T. 20S, R. 24E.
Grand County, Utah

Well No. State L. B. # 1
Sec. 32, T. 20S, R. 24E.
Grand County, Utah

Dear Mr. Broadhead:

This letter is to advise you that the Well Completion or Recompletion Report and Log for the above mentioned wells are due and have not been filed with this office as required by our rules and regulations.

Please complete the enclosed Form OGC-3, in duplicate, and forward them to this office as soon as possible.

We will be happy to acknowledge receipt of response to this notice if you will include an extra copy of the transmittal letter with a place for our signature, and a self addressed envelope for the return. Such acknowledgement should avoid unnecessary mailing of a firm second notice from our agency.

Your prompt attention to the above will be greatly appreciated.

Respectfully,

DIVISION OF OIL, GAS AND MINING

Cari Furse
Well Records Specialist

CF/cf
Enclosure



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Dr. G. A. (Jim) Shirazi, Division Director

4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

September 14, 1983

Walter D. Broadhead
1645 North 7th Street
Grand Junction, Colorado 81501

2nd NOTICE

Re: Well No. Patsantaras Fee Pete # 3 ✓
1820' FSL, 1182' FWL
NW SW, Sec. 3, T. 20S, R. 24E.
Grand County, Utah

Well No. State L. B. # 1 ✓
2442' FSL, 2451' FEL
NW SE, Sec. 32, T. 20S, R. 24E.
Grand County, Utah

Well No. Federal Harris # 2 ✓
2269' FNL, 1465' FWL
SE NW, Sec. 33, T. 20S, R. 24E.
Grand County, Utah

Dear Mr. Broadhead:

On February 25, 1983, I spoke with you concerning the above referred to wells. This office had not and as of today's date has not received the Well Completion Reports for the above wells.

This letter is to advise you that the Well Completion or Recompletion Report and Log for the above mentioned wells are due and have not been filed with this office as required by our rules and regulations.

Please complete the enclosed Form OGC-3, in duplicate, and forward them to this office as soon as possible.

****You are in violation with the above rule. If you wish to continue developing business in the State of Utah, compliance with pertinent rules and regulations is essential. Further delay in your attention to the above matter may result in punitive action. Please submit the required information as stated above within fifteen (15) days.**

Respectfully,

DIVISION OF OIL, GAS AND MINING

Cari Furse

Cari Furse
Well Records Specialist

CF/cf
Enclosure

*Mr. Broadhead
10/11/83*

Not Drilled

PREP TO PLUG

OK Reports Recd.

*still no compliance
10-4-83*

*still no compliance
11-8-84*

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil ☐ well gas ☐ well other Dry

2. NAME OF OPERATOR
Walter D. Broadhead

3. ADDRESS OF OPERATOR
1645 No. 7th Grand Junction, CO

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
2269' RWL, 1465' RWL, SE 1/4 NW 1/4
AT SURFACE: Section 33, T20S, R24E
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:

TEST WATER SHUT-OFF ☐

FRACTURE TREAT ☐

SHOOT OR ACIDIZE ☐

REPAIR WELL ☐

PULL OR ALTER CASING ☐

MULTIPLE COMPLETE ☐

CHANGE ZONES ☐

ABANDON* ☒

(other) _____

SUBSEQUENT REPORT OF

☐
☐
☐
☐
☐
☐
☐
☒

not subsequent

5. LEASE U-32179

6. IF INDIAN, ALLOTTEE OR TRIBE NAME _____

7. UNIT AGREEMENT NAME _____

8. FARM OR LEASE NAME
Fed Harris

9. WELL NO.
Fed Harris N2

10. FIELD OR WILDCAT NAME
Greater Cisco Area

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
33, T20S, R24E, S4M.

12. COUNTY OR PARISH
Grand

13. STATE
Utah

14. API NO.
43-019-30873

15. ELEVATIONS (SHOW DF, KDB, AND WD)
EV 45-33'

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

84' 7" 17Lb. casing Dec 24, 1981 with 30 SX
6 1/2" hole to 600' with air mist
T.D. 600' 12-27-81
Set 5-30' 4 1/2" 10.5-Lb with 4 SX
Perforated with 20 holes at 485 to 495-
will leave casing in hole
will fill hole with cement. with Dry hole Marker

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED Walter D. Broadhead TITLE operator DATE NOV 9 1983

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____
CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY THE STATE
OF UTAH DIVISION OF
OIL, GAS, AND MINING
DATE: 11/9/83
BY: [Signature]

1199-652

P+4
12.24.81

UTAH STATE
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS

INSPECTION RECORD - ABANDONMENT



Date 1-4-84
Location (T-R-S) 20S-24E-33
Field Area Greater Cisco Area
County GRAND
State UTAH
Inspector W. MOORE *W. Moore*

WELL NAME FEDERAL HARRIS #2
Operator W.D. BROADHEAD
Contractor & Rig _____
Lease Number U-32179
Type of Well* DRY
INC Issued _____

	YES	NO
1. Plugs spotted across perforations if casing set?		
2. Plugs spotted at casing stubs?		
3. Open hole plugs spotted as specified?		
4. Retainers, bridge plugs, or packers set as specified?		
5. Cement quantities as specified?		
6. Method of verifying and testing plugs as specified?		
7. Pipe withdrawal rate satisfactory after spotting plug?		
8. All annular spaces plugged to surface?		

Plug tested: ☐ No ☐ Pressured ☐ Tagged
If tested, which plug(s) _____

Cement and mechanical plug placement data (attach service company report if available):

Cement plug spotting method: _____

Operation(s) witnessed: _____

Additional Remarks: PIT NOT FILLED AND LEVELED WITH SURROUNDING
CONTOURS. OTHERWISE PROPERLY MARKED AND REHABILITATED.

* Dry hole, depleted producer, service, water well, etc.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil ☐ well gas ☐ well other Dry
2. NAME OF OPERATOR
Walter D. Broadhead
3. ADDRESS OF OPERATOR
1645 N. 7th Grand Junction Colo 81501
4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
2269' FNL. 1465 FNL.
AT SURFACE: Sec 33 T20S R24E SLM.
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH: 600
16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

REQUEST FOR APPROVAL TO:

- TEST WATER SHUT-OFF ☐
FRACTURE TREAT ☐
SHOOT OR ACIDIZE ☐
REPAIR WELL ☐
PULL OR ALTER CASING ☐
MULTIPLE COMPLETE ☐
CHANGE ZONES ☐
ABANDON* ☒
(other) ☐

SUBSEQUENT REPORT OF:

- ☐
☐
☐
☐
☐
☐
☐
☐
☒
☐

5. LEASE 14 32179
6. IF INDIAN, ALLOTTEE OR TRIBE NAME
7. UNIT AGREEMENT NAME
8. FARM OR LEASE NAME
Fed Harris
9. WELL NO.
Harris No 2
10. FIELD OR WILDCAT NAME
Greaterisco Area
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 33, T.20S, R.24E, SLM.
12. COUNTY OR PARISH Grand 13. STATE Utah
14. API NO.
43-019-30 873
15. ELEVATIONS (SHOW DF, KDB, AND WD)
45 33 GV.

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

T.D. 600'
Set 530' 4 1/2" casing
Left casing in hole
Filled casing with 40 SX
with Dry hole marker
cleaned location Nov 12, 1983
Filled pit Jan 10 - 84

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED Walter D. Broadhead TITLE operator DATE Jan 26-84

(This space for Federal or State office use)

APPROVED BY _____
CONDITIONS OF APPROVAL, IF ANY:

TITLE _____

DATE _____
APPROVED BY THE STATE
OF UTAH DIVISION OF
OIL, GAS, AND MINING

*See Instructions on Reverse Side

DATE: _____
BY: _____

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> DRY <input checked="" type="checkbox"/> Other _____		5. LEASE DESIGNATION AND SERIAL NO. <u>U-32179</u>	
b. TYPE OF COMPLETION: NEW WELL <input type="checkbox"/> WORK OVER <input type="checkbox"/> DEEP-EN <input type="checkbox"/> PLUG BACK <input type="checkbox"/> DIFF. RESVR. <input type="checkbox"/> Other _____		6. IF INDIAN, ALLOTTEE OR TRIBE NAME _____	
2. NAME OF OPERATOR <u>Walter D Broadhead</u>		7. UNIT AGREEMENT NAME _____	
3. ADDRESS OF OPERATOR <u>1645 N 75th Grand Junction Colo. 81501</u>		8. FARM OR LEASE NAME <u>Fed Harris</u>	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)* At surface <u>2269' FNL. 1465 FWL. 854 NW</u> At top prod. interval reported below <u>Sec 33, T20S, R24E</u> At total depth <u>600</u>		9. WELL NO. <u>Fed Harris No 2</u>	
14. PERMIT NO. <u>43-019-30873</u>		10. FIELD AND POOL, OR WILDCAT <u>Greater Cisco Area</u>	
DATE ISSUED _____		11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA <u>33, T20S R24E</u>	
15. DATE SPUDDED <u>12-20-81</u>	16. DATE T.D. REACHED <u>12-24-81</u>	12. COUNTY OR PARISH <u>Grand</u>	13. STATE <u>Utah</u>
17. DATE COMPL. (Ready to prod.) _____	18. ELEVATIONS (DF, REB, RT, GR, ETC.)* <u>Gr 4533'</u>	19. ELEV. CASINGHEAD <u>4533'</u>	
20. TOTAL DEPTH, MD & TVD <u>600</u>	21. PLUG, BACK T.D., MD & TVD <u>TD to Surface</u>	22. IF MULTIPLE COMPL., HOW MANY* _____	23. INTERVALS DRILLED BY <u>Rotary</u>
24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)* _____			25. WAS DIRECTIONAL SURVEY MADE <u>NO</u>
26. TYPE ELECTRIC AND OTHER LOGS RUN <u>DUAL INDUCTION</u> <u>Gamma Ray Correlation log</u>			27. WAS WELL CORED <u>NO</u>
28. CASING RECORD (Report all strings set in well)			
CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE
<u>7"</u>	<u>17.60</u>	<u>84'</u>	<u>8 5/8"</u>
<u>4 1/2"</u>	<u>10.5</u>	<u>530'</u>	<u>6 3/4"</u>
CEMENTING RECORD		AMOUNT PULLED	
<u>Circulate to Surface</u>		<u>NO</u>	
<u>40 SX</u>		<u>NO</u>	
29. LINER RECORD			
SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*
30. TUBING RECORD			
SIZE	DEPTH SET (MD)	PACKER SET (MD)	
31. PERFORATION RECORD (Interval, size and number) <u>488' to 496' 2 pay Ft 1/2 in</u>			
32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.			
DEPTH INTERVAL (MD)		AMOUNT AND KIND OF MATERIAL USED	
33. PRODUCTION			
DATE FIRST PRODUCTION _____		PRODUCTION METHOD (Flowing, gas lift, pumping—size and type of pump) _____	
DATE OF TEST _____		WELL STATUS (Producing or shut-in) _____	
HOURS TESTED _____	CHOKES SIZE _____	PROD'N. FOR TEST PERIOD _____	OIL—BBL. _____
			GAS—MCF. _____
			WATER—BBL. _____
			GAS-OIL RATIO _____
FLOW. TUBING PRESS. _____	CASING PRESSURE _____	CALCULATED 24-HOUR RATE _____	OIL GRAVITY-API (CORR.) _____
34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) _____			TEST WITNESSED BY _____
35. LIST OF ATTACHMENTS _____			
36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records			
SIGNED <u>Walter D Broadhead</u>		TITLE <u>operator</u>	DATE <u>Jan 16-84</u>

*(See Instructions and Spaces for Additional Data on Reverse Side)

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES: SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES				38. GEOLOGIC MARKERS		
FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	MEAS. DEPTH	TRUE VERT. DEPTH
Manos	0'	30'	Gray shale			
Dakota	30'	160'	White sand & gray shale			
Manison	160'	480	Green & Red shale			
Salt wash	480	612	Red shale			